HAEMATOLOGICAL STUDIES ON A MARINE FISH: II PAMPUS ARGENTEUS (POMFRET)

(Received November 20, 1992; Accepted June 20, 1993)

Shila Singh and V. Banerjee
Haematology Laboratory, P.G. Department of Zoology, Patna University,
Patna-800 005, INDIA

Erythrocytes of both the sexes were oval but few erythrocytes were elliptical and the nucleus always followed the erythrocyte shape. TEC, Hb content, PCV were significantly higher in males and Hb & PCV were positively correlated with TEC but there was negative correlation between TEC & PCV. Among leucocytes lymphocytes predominated & TLC was higher in females than in males.

Scanty works have been reported on the blood parameters of marine fish. Because it is a difficult task to collect the marine fish, so, much importance was not given for their haematological studies. Although a larger number of works have appeared on the variation of blood-parameters under stressful conditions of fresh-water fishes: Only a few reports in case of marine fishes have come to our knowledge. The present studies deal with the blood parameters of a marine fish Pampus argenteus which is second in the series.

MATERIALS AND METHODS

Live fishes were collected with the help of local-fisherman by boat seine operation at the Visakhapatnam coast. The blood was collected at the shore. For determination of haematological parameters the standard methods were used.

OBSERVATIONS AND DISCUSSION

Various haematological values are summarized in Table 1. Stained blood films showed the presence of oval and elliptical erythrocytes like other marine fishes. The authors failed to identify any erythroplastids or cells with dividing nucleus. Larger cells were found in females as in fresh-water teleosts. In marine fishes the highest TEC was reported to be $4.58 \times 10^6 / \text{mm}^3$. Hb level $16.1 \text{g/100 ml}$ and PCV $\%$
Table 1—The different values of blood parameters found in *P. argenteus* (m—male, f—female, ±—Standard error; *—Significant).

<table>
<thead>
<tr>
<th>Parameters</th>
<th>m</th>
<th>f</th>
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<tbody>
<tr>
<td><strong>1. Erythrocytes</strong></td>
<td></td>
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<tr>
<td>RBC ((\mu m))</td>
<td>7.06±0.04</td>
<td>8.24±0.04</td>
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<tr>
<td>B RBC ((\mu m))</td>
<td>6.06±0.02</td>
<td>6.56±0.03</td>
</tr>
<tr>
<td>nucleus ((\mu m))</td>
<td>3.85±0.02</td>
<td>3.90±0.02</td>
</tr>
<tr>
<td>B' nucleus ((\mu m))</td>
<td>3.23±0.06</td>
<td>3.0±0.06</td>
</tr>
<tr>
<td>Erythrocyte(L/B)</td>
<td>1.29</td>
<td>1.26</td>
</tr>
<tr>
<td>Nucleus L'/B'</td>
<td>1.19</td>
<td>1.30</td>
</tr>
<tr>
<td>Cell surface area ((\mu m^2))</td>
<td>37.37</td>
<td>42.47</td>
</tr>
<tr>
<td>Nuclear Surface area ((\mu m^2))</td>
<td>9.77</td>
<td>9.19</td>
</tr>
<tr>
<td>N/C ratio</td>
<td>0.26</td>
<td>0.22</td>
</tr>
<tr>
<td>TEC (10^9/mm^3)</td>
<td>3.8±0.72</td>
<td>3.0±0.60*</td>
</tr>
<tr>
<td>Hb (g/100 ml)</td>
<td>9.0±0.60</td>
<td>7.4±0.52*</td>
</tr>
<tr>
<td>PCV (%)</td>
<td>46.6±3.8</td>
<td>42.2±4.4*</td>
</tr>
<tr>
<td>MCV ((\mu m^3))</td>
<td>120.0</td>
<td>140.66</td>
</tr>
<tr>
<td>MCH (pg)</td>
<td>23.68</td>
<td>24.66</td>
</tr>
<tr>
<td>MCHC (%)</td>
<td>19.74</td>
<td>17.53</td>
</tr>
<tr>
<td>ESR (mm/h)</td>
<td>1.6±0.68</td>
<td>2.2±0.8</td>
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</table>

2. Leucocytes

a) Size (\(\mu m\))
   - Lymphocyte 7.5×7.5 7.0×7.0
   - Monocyte 7.5×6.0 7.5×6.0
   - Neutrophil 6.0×6.0 6.0×6.0
   - Eosinophil 6.9×6.2 6.9×6.2
   - Basophil 6.6×6.0 7.5×6.0

b) Differential Counts (%)
   - Lymphocytes 76.0 80.0
   - Monocyte 10.0 8.0
   - Neutrophil 4.0 4.0
   - Eosinophil 6.0 6.0
   - Basophil 4.0 2.0

c) TLC (X10^4/mm^3)
   - 12.4±3.2 14.0±3.4*
46.8%. All these values of *Pampus* lie below the recorded values for other marine fishes. It was further noted that TEC, Hb level and PCV were significantly higher in males than in females. Lymphocytes formed the highest leucocyte population. Other cell types like all the different types of granulocytes were found in low percentage and in some individuals all the cell types were not present. TLC was significantly higher in females which also lies within the range (12.5-26.0 x 10⁴/mm³) reported for marine fishes¹⁵.

ACKNOWLEDGEMENTS

We are thankful to Dr. S.N. Ahsan, Professor and Head, Department of Zoology, Patna University for providing us adequate laboratory facilities.

Explanation of Plate:

Microphotographs of the blood films of *Pampus argenteus* X 700.

Figs. 1-3 - 1. Round erythrocyte with round nucleus and oval erythrocytes with round and oval nucleus. 2: Note the different shapes of the erythrocyte and nucleus. 3. Erythrocytes with large (upper) and one small lymphocyte:

REFERENCES